

## A NEW SPECIES OF *DICENTROPTILUM* (EPHEMEROPTERA: BAETIDAE) FROM KENYA<sup>1</sup>

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**ABSTRACT:** *Dicentropitulum clandestinum*, new species (Ephemeroptera: Baetidae), is described from Kenya and is unique in the genus *Dicentropitulum* by having dorsal abdominal tuberculation in the larval stage. The species is known as larvae only, and is distinguished from other species of *Dicentropitulum* by the presence of single, apically blunt, medial tubercles on abdominal terga 1-7; characteristic labrum, mandibles, and labial palp segment 2; the presence of procoxal papillae; and the specific color pattern of the abdomen. *Dicentropitulum* represents only the third genus of the *Centropitiloides* complex of Afrotropical genera to demonstrate the recurrent trait of dorsal abdominal tuberculation.

Wuillot and Gillies (1994) erected the Afrotropical genus *Dicentropitulum* for *D. decipiens* (Gillies) (type of the genus), *D. papillosum* Wuillot, and *D. spinulosum* (Demoulin). Later, Lugo-Ortiz and McCafferty (1998) added *D. merina* Lugo-Ortiz and McCafferty. *Dicentropitulum decipiens* and *D. papillosum* are known from larvae and male adults (Gillies 1990, Wuillot and Gillies 1994), *D. spinulosum* is known from male adults (Demoulin 1970), and *D. merina* is known from larvae (Lugo-Ortiz and McCafferty 1998). *Dicentropitulum decipiens*, *D. papillosum*, and *D. spinulosum* have been reported from continental Africa, whereas *D. merina* is the only species of the genus reported from Madagascar (Demoulin 1970, Gillies 1990, Wuillot and Gillies 1994, Lugo-Ortiz and McCafferty 1998).

Lugo-Ortiz and McCafferty (1998) assigned *Dicentropitulum* to the *Centropitiloides* complex of Afrotropical genera because its larvae have two rows of denticles on the tarsal claws (Fig. 9; Lugo-Ortiz and McCafferty 1998: Fig. 66). Within this complex, *Dicentropitulum* is distinguished by the presence of a medially raised, broad, and long labrum (Fig. 1; Lugo-Ortiz and McCafferty 1998: Fig. 59) and a dorsal row of long, fine, simple setae on the tibiae and tarsi (Fig. 8; Lugo-Ortiz and McCafferty 1998: Fig. 65).

Herein, we describe a distinctive new species of *Dicentropitulum* based on a unique larval specimen collected from Kenya by George and Christine Edmunds in 1971. The material upon which the new species is based demonstrates the presence of a significant feature and biodiversity previously not associated with the genus *Dicentropitulum*. Material examined is deposited in the Purdue Entomological Research Collection, West Lafayette, Indiana.

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*Dicentropitulum clandestinum* Lugo-Ortiz and McCafferty, NEW SPECIES

**Larva.** Body length: 8.5 mm; cerci length: 6.0 mm; median caudal filament length: 3.0 mm. Head: Coloration pale yellow-brown to medium brown; small, vermiform pale yellow-brown markings on vertex and large, round, pale yellow-brown marking on frons. Antennae approximately 1.5x length of head capsule. Labrum (Fig. 1) dorsally with submedial pair of long, fine, simple setae and anterior submarginal row of eight to nine long, fine, simple setae. Hypopharynx as in Figure 2. Left mandible (Fig. 3) with incisors with five denticles (two well defined, three poorly developed); prosthema robust, apically denticulate; tuft of short, fine, simple setae between prosthema and mola. Right mandible (Fig. 4) with outer set of incisors with two denticles, inner set with three poorly developed denticles; prosthema slender, apically bifid; tuft of short, fine, simple setae between prosthema and mola. Maxillae (Fig. 5) with four long, fine, simple setae near medial hump; palp segments subequal in length. Labium (Fig. 6) with glossae slightly shorter than paraglossae, medially and apically with long, fine, simple setae; paraglossae apically with abundant long, fine, simple setae, and few apically pectinate setae; palp segment 1 slightly shorter than segments 2 and 3 combined; palp segment 2 basally narrow, distomedially produced, with five long, fine, simple setae dorsally; palp segment 3 short, broadly subconical. Thorax: Coloration pale yellow-brown to medium brown, with complex markings. Pronotum with raised ridge along posterior margin; meso- and metanotum posteromedially with single, small, apically blunt tubercles. Procoxae (Fig. 7) with ventral pair of papillae. Legs (Fig. 8) pale yellow-brown to medium brown; femora dorsally with row of long, robust, simple setae and ventrally with minute, sharp, simple setae; tibiae dorsally with long, fine, simple setae and ventrally with minute, sharp, simple setae; tarsi dorsally with long, fine, simple setae and ventrally with row of robust, sharp, simple setae, increasing in length apically; tarsal claws (Fig. 9) with two rows of six blunt denticles each. Abdomen (Figs. 11, 12): Terga 1-7 with single, apically blunt, medial tubercles. Coloration pale yellow-brown to medium brown. Terga 1 and 2 with large posteromedial medium brown subtriangular marking; tergum 3 with large anteromedial medium brown oblong marking; tergum 4 with anteromedial pair of small medium brown oblong dots; tergum 5 with anteromedial triad of small medium brown oblong dots; tergum 6 with large posteromedial medium brown subtriangular marking; tergum 7 with anteromedial small medium brown round marking; tergum 8 with medial pair of small medium brown round dots; terga 9 and 10 yellow-brown, with medial pair of faint brown round dots. Sterna medium yellow-brown to pale brown. Gills (Fig. 10) well tracheated, marginally serrate and with minute, fine, simple setae. Paraprocts with sharp spines, increasing slightly in size distally. Caudal filaments light brown; cerci without medial sinuities.

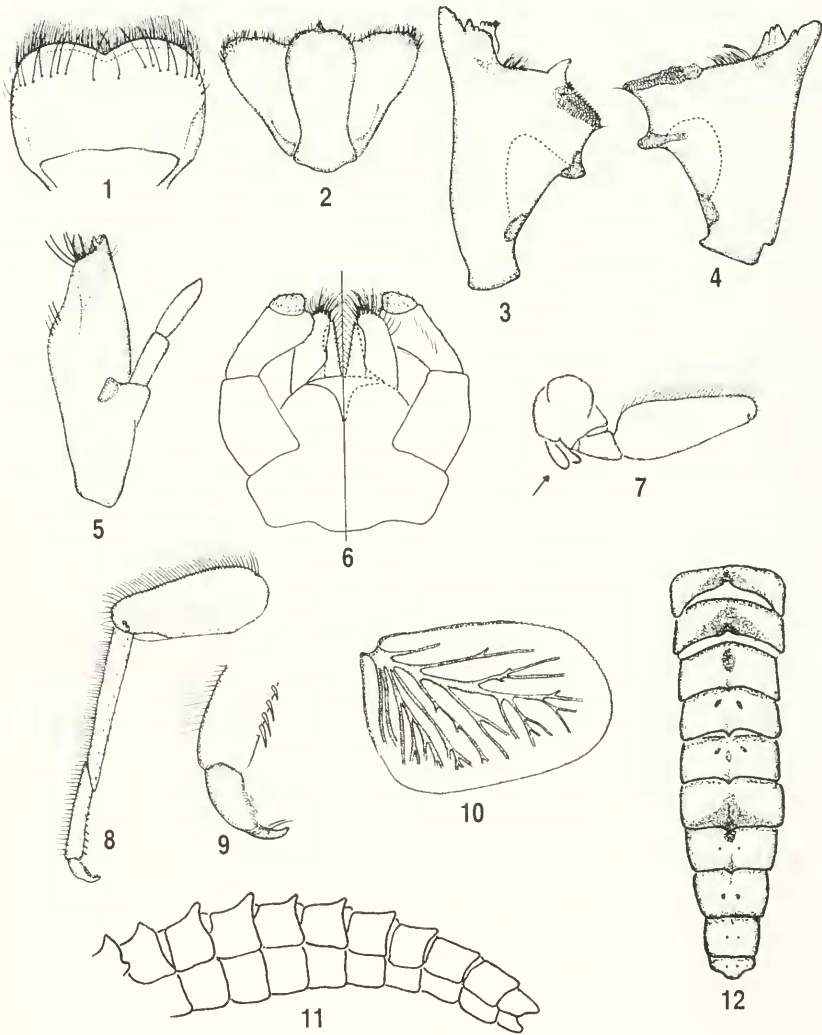
**Adult.** Unknown.

**Material examined.** Holotype: Larva, Kenya, Marira River, near Meru, 22-XI-1971, G. F. and C. H. Edmunds [mouthparts, right foreleg, and gill 4 mounted on slide (medium: Euparal)].

**Etymology.** The specific epithet is from the Latin, meaning hidden.

**Discussion.** *Dicentropitulum clandestinum* is most easily distinguished from *D. decipiens*, *D. merina*, and *D. papillosum* by the presence of single, apically blunt, medial tubercles on terga 1-7 (Figs. 11, 12). Other features that, in combination, aid in distinguishing *D. clandestinum* include the dorsal setation of the labrum (Fig. 1), the denticulation of the mandibles (Figs. 3, 4), the morphology of labial palp segment 2 (Fig. 6), the presence of procoxal papillae (Fig. 7), and the coloration of the abdomen (Fig. 12).

*Dicentropitulum clandestinum* appears most closely related to *D. papillosum*. Both species have similar labial morphology (Fig. 6; Wuillot and Gillies 1994:



Figs. 1-12. *Dicentropitulum clandestinum*, new species. 1. Labrum (dorsal). 2. Hypopharynx. 3. Left mandible. 4. Right mandible. 5. Left maxilla. 6. Labium (left-ventral; right-dorsal). 7. Procoxal papillae (pointer towards papillae). 8. Right foreleg. 9. Tarsal claw. 10. Gill 4. 11. Abdomen (lateral). 12. Abdomen (dorsal).

Fig. 8) and possess procoxal papillae (Fig. 7; Wuillot and Gillies 1994: Fig. 10). Interestingly, *D. papillosum* has a small medial tubercle on the metanotum (Wuillot and Gillies 1994: Fig. 12); however, in *D. clandestinum*, the metanotal tubercle is much more developed and erect (Fig. 11).

Superficially, the appearance of the larva of *D. clandestinum*, with its rather narrow body and long legs, is reminiscent of larvae of the southern African *Baetis* complex genus *Demoreptus* Lugo-Ortiz and McCaffery (1997).

The extensive development of dorsal abdominal tubercles in *D. clandestinum* (Figs. 11, 12) is significant because such tuberculation has not been associated with the genus and indicates its additional presence in the *Centroptiloides* complex (Lugo-Ortiz and McCaffery 1998). The only genera within that complex previously known to have dorsal abdominal tubercles are *Acanthiops* Waltz and McCaffery and *Thraulobaetodes* Elouard and Hideux (Lugo-Ortiz and McCaffery 1998, Elouard and Hideux 1991).

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